POSITIONING STRUCTURE OF PLANE IMAGE INPUT APPARATUS

FIELD OF THE INVENTION

The present invention relates to a positioning structure adopted for use on a plane image input apparatus and particularly to a positioning structure for improving accuracy of correcting color rank and positioning of the correct picture.

BACKGROUND OF THE INVENTION

Referring to FIGs. 1 and 2, a conventional scanner includes a lid 10, a scanner body 20 and a printed circuit board (PCB) 30. The lid 10 is for flattening a scanned document 70. The scanner body 20 houses the main mechanisms of the scanner, including a transmission mechanism 21, an optical module 22 and a guiding track 23. The transmission mechanism 21 drives the optical module 22 moving reciprocally along the guiding track 23. The optical module 22 includes a light source 221, a reflecting mirror set 222 and a charge-coupled device (CCD) 223. The light source 221 emits light and projects the light to the scanned document 70. The scanned document 70 reflects the light to the reflecting mirror set 222, which reflects the light to the CCD 223. The PCB 30 receives a driving signal and drives the transmission mechanism 21, to move the optical module 22 reciprocally along the guiding track 23 in the scanner body 20. Meanwhile, the optical module 22 reads the scanned document 70 during the scanning movement to obtain image signals. The image signals are transformed to digital signals, which are transferred to a computer or printing equipment to output, store or process.

While the optical module 22 is moving reciprocally along the guiding track 23, it is also reading a correct picture 80, located on an upper side of the scanner body 20 to

correct the color rank of the scanner, and perform positioning through selected patterns of the correct picture 80. However, due to space constraint on the upper side of the scanner, when the scanner document 70 has the selected patterns of the correct picture 80, positioning might fail.

Beside the scanner, copiers also use the correct picture 80 to perform correction of color, rank and positioning. Those types of plane image input apparatus all have the same problem.

SUMMARY OF THE INVENTION

Therefore, the primary object of the present invention is to provide a positioning structure of a plane image input apparatus to improve accuracy of correcting color rank and positioning of the correct picture.

The positioning structure of a plane image input apparatus according to the invention includes a body and an optical module. The body has a hollow interior and has an outer side on one side holding a scanned document. The body has another side holding a correct picture on an inner side thereof. The optical module is located in the hollow interior and movable reciprocally. The optical module includes a correct light source for emitting light, a correct hole for reflecting the light into the optical module, a guiding mirror set for directing the light and a CCD for receiving light. The correct light source and the correct hole are located on another side of the body.

By means of the construction set forth above, when the optical module is moved to the correct light source corresponding to the correct picture, light emitted from the correct light source projects to the correct picture, and is reflected to the correct hole and enters the optical module. The guiding mirror set directs the light to the CCD for the optical module to perform correction of color rank and positioning, thereby improving

accuracy of correcting color rank and positioning of the correct picture.

The foregoing, as well as additional objects, features and advantages of the invention will be more readily apparent from the following detailed description, which proceeds with reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a schematic view of a conventional scanner.

FIG. 2 is a schematic view of the optical module of a conventional scanner.

FIG. 3 is a schematic view of the invention.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to FIG. 3, the positioning structure of a plane image input apparatus according to the invention includes a lid 40, a body 50 and a printed circuit board (PCB) 60. The lid 40 is located on an outer side of one side of the body 50 for flattening a scanned document 70. The body 50 has a hollow interior to house the main mechanisms of the scanner, including a transmission mechanism 51, an optical module 52 and a guiding track 53. The scanned document 70 is located on the outer side of one side the body 50. The body 50 has another side holding a correct picture 80 therein. The transmission mechanism 51 drives the optical module 52 to move reciprocally along the guiding track 53. The optical module 52 includes a scan light source 521, a scan hole 524, a reflecting mirror set 522 and a charge-coupled device (CCD) 523. The scan light source 521 is located on the one side of the scanner corresponding to the scanned document 70. It emits light and projects the light to the scanned document 70. The scanned document 70 reflects the light to the reflecting mirror set 222 located in the

optical module 52 through the scan hole 524. Then the light is reflected to the CCD 223. The PCB 60 receives a driving signal and drives the transmission mechanism 51 to move the optical module 52 reciprocally along the guiding track 53 in the scanner body 50. Meanwhile, the optical module 52 reads the scanned document 70 during the scanning movement to obtain image signals. The image signals are transformed to digital signals, which are transferred to a computer or printing equipment to output, store or process.

The optical module 52 further includes a correct light source 525, a correct hole 526, and a guiding mirror set 527. The correct light source 525 emits light. The correct hole 526 allows reflecting light to enter the optical module 52. The guiding mirror set 527 directs the light. The correct light source 525 and the correct hole 526 are located on another side of the body (where the correct picture 80 is located). When the correct light source 525 of the optical module 52 is corresponding to the correct picture 70, the correct light source 525 emits light and projects the light to the correct picture 80, the light is reflected and enters the optical module 52 through the correct hole 526. The guiding mirror set 527 directs the light to the CCD 523, to perform color rank correction and positioning.

To prevent external light from entering the optical module 52 through the correct hole 526 and creating interference, a masking element 528 may be provided in the optical module 52. The masking element 528 is corresponding to the correct light source 525 and has one end abutting the body 50.

By means of the positioning structure of the invention, when the optical module 52 is moved to the correct light source 525 corresponding to the correct picture 80, light emitted from the correct light source 525 is projected to the correct picture 80, and reflected through the correct hole 526 to enter the optical module 52. The guiding mirror set 527 directs the light to the CCD 523 for the optical module 52 to perform color rank

correction and positioning. The masking element 528 can prevent external light other than the correct light source 525 from entering the optical module 52 through the correction hole 526 and creating interference. Therefore the invention can improve the accuracy of correcting color, rank and positioning of the correct picture.

While the preferred embodiment of the invention has been set forth for the purpose of disclosure, modifications of the disclosed embodiment of the invention as well as other embodiments thereof may occur to those skilled in the art. Accordingly, the appended claims are intended to cover all embodiments, which do not depart from the spirit and scope of the invention.